CLAIMS

I claim:

1. A camera for recording a panoramic field of view in a scanning fashion, comprising:

i. a rotatable drum having an axis of rotation and a perimeter; and

ii. at least one subcamera disposed at the perimeter of the drum, the subcamera comprising

a lens having an optical axis and an image plane, said optical axis being not radial to said axis of rotation; and

a linear sensor having a sensor area which intersects said optical axis and which lies within the image plane.

2. The camera of claim 1, wherein the optical axis of each lens is substantially tangential to the perimeter of the drum.

3. The camera of claim 1, wherein an even number of subcameras are disposed at the perimeter of the drum.

4. The camera of claim 3, wherein the subcameras are disposed substantially on opposite sides of said drum, and provide in the course of the rotation of the drum, a repeated

viewing of objects in the surrounding environment from two points of view with parallax separation.

5. The camera of claim 1, wherein each lens has a vertical field of view of at least 160 degrees.

6. The camera of claim 1, wherein the linear sensor produces a monochrome signal.

7. The camera of claim 1, wherein the linear sensor is sensitive to infrared wavelengths.

8. The camera of claim 1, wherein the linear sensor provides a color signal.

9. The camera of claim 1, wherein means for transmission are coupled to said sensors.

10. The camera of claim 1, wherein the rotation of the rotatable drum is 360 degrees, and repeated in regular periods.

11. The camera of claim 10, wherein the rotation is at least 15 times per second.

12. The camera of claim 10, wherein the rotation is at least 30 times per second.

13. The camera of claim 10, wherein the rotation is at least 60 times per second.

14. The camera of claim 10, wherein the camera weight is balanced at the axis of rotation.

15. The camera of claim 10, additionally comprising means for aerodynamic lift.

16. The camera of claim 10, wherein the electrical readings of the linear sensor, representing pictorial information, are grouped to form images representing a portion of a rotation.

17. The camera of claim 16, wherein image compression is applied to the pictorial information.

18. The camera of claim 16, wherein processing means are used to extract a movable region of interest from the pictorial information.

19. The camera of claim 16, wherein the images each represent one complete rotation.

20. The camera of claim 16, wherein the images represent images with stereoscopic separation.

21. The camera of claim 20, wherein both stereoscopic images are viewed together as a stereo pair.

22. The camera of claim 21, wherein the convergence of the stereoscopic images is controlled by lateral distortion of one of the images relative to the other.

23. The camera of claim 22, wherein a rangefinding sensor on the drum is used to determine the amount of lateral distortion applied.

24. The camera of claim 1, further comprising recording means for the electrical signals representing the pictorial information from each subcamera.

25. The camera of claim 24, wherein said recording means include means for multiplexing said electric signals.

26. The camera of claim 24, wherein said recording means include a film recorder, and said electrical signals are first converted into light before being recorded on a strip of photographic film.

27. The camera of claim 24, wherein playback means are coupled to said recording means for subsequent playback of the pictorial information.

28. A self-cleaning camera, comprising:

i. a rotating camera with at least one lens, and

ii. at least one scoop channel enclosure with an intake and an output, the intake being located on the leading side of the lens, and the output underneath the lens, so that the rotation of the camera causes air to be redirected upward across the face of the lens.

29. A method for recording a stereoscopic image of a wide field of view, up to a complete sphere, including the steps of:

i. aligning at least two line scan devices within the field of view such that their optical axes are in the same plane, separated, approximately parallel, and pointed in the same direction;

ii. rotating said line scan devices simultaneously about an axis of rotation, the axis of rotation being approximately perpendicular to said plane and disposed equidistant to and between said line scan devices, said rotation being at the rate of at least 500 rpm;

iii. sampling the output of said line scan devices at least 1000 times each during said rotation, to produce scans from each sensor; and

iv. processing said scans so as to assemble a composite image having stereoscopic separation thoughout the image.

30. The method of claim 29, with the additional steps of placing duplicates of said line scan devices in rotated positions around said optical axis, and adjusting the timing of

the recording of the additional scans produced by said duplicates so that they appear interleaved with the scans produced by the original line scan sensors.

31. The method of claim 29, with the additional step of adjusting the convergence of the stereoscopic image by digital delays of the scans.